

Karl Popper's Principle of Falsification and Its Application in Islamic Economics

Amimah Oktarina, Katra Pramadeka
UIN Fatmawati Sukarno Bengkulu, Indonesia
Email: amimahoktarina@mail.uinfasbengkulu.ac.id

Abstract

Science is not just knowledge, but summarizes a collection of knowledge based on agreed theories and can be systematically tested with a set of methods recognized in a particular field of science. Thus, science is not only limited to things that can be captured by the five senses such as observation, understanding and reasoning, but also requires a standardization process that is systematic and methodical. Starting from this definition, questions then arise about Popper's principle of falsification and how it is related to Islamic economics which is currently being widely discussed. To answer questions related to the philosophy of science as above, the author will raise the views of scientific experts who have made a major contribution to the development of science to date, namely Karl Popper with his theory of falsification. Based on the discussion above, it can be concluded that falsification is the right way to develop science because basically science can develop based on errors or mistakes. Popper's ideas are interesting when applied to the study of Islamic economics. Several studies on Islamic economics indicate that Popper's falsification principle can be used to study Islamic economics so that it can be understood comprehensively. The function of falsification is not to weaken but to identify weaknesses so that they can be overcome so as to perfect the theory or science.

Key words: *Science, Popper, Islamic economics*

A. Introduction

Knowledge, science, or knowledge (English: *science* ; Arabic: العلم) are conscious efforts to investigate, discover and improve human understanding of various aspects of reality in the human world. These aspects are limited in order to produce definite formulations. Science provides certainty by limiting the scope of its view, and the certainty of knowledge is obtained from its limitations.

Science is not just knowledge, but summarizes a collection of knowledge based on agreed theories and can be systematically tested with a set of methods recognized in a particular field of science. Viewed from a philosophical perspective, science is formed because humans try to think further about the knowledge they have. Science is a product of epistemology, in other words science is formed from 3 branches of philosophy, namely ontology, epistemology and axiology, if these three branches are fulfilled it means it is valid and recognized as a science.

Natural science can only be certain after its field is limited to material things, or psychology can only predict human behavior if its scope of view is limited to general aspects of concrete human behavior. Regarding this example, natural sciences answer the question of how far away the sun is from the earth, or psychology answers whether a young woman is suitable to be a nurse.

Meanwhile, philosophy (from the Greek word , *philosophia* , literally meaning "love of wisdom") is a science that examines general and basic questions, for example questions about existence, reasoning, noble values , reason, and language . The term was probably first expressed by Pythagoras (c. 570–495 BC). Methods used in philosophy include asking questions, critical discussions, dialectics, and systematic presentations.

Historically, philosophy encompasses the essence of all knowledge. From the time of Ancient Greek philosophers such as Aristotle until the 19th century, natural philosophy encompassed astronomy, medicine, and physics. For example, Newton's Mathematical Principles of Natural Philosophy in 1687 was later classified as a physics book. In the 19th century, the development of modern university research led to the professionalization and specialization of academic philosophy and other disciplines. In the modern era, several investigations that were traditionally part of philosophy have become separate academic disciplines, including psychology, sociology, linguistics, and economics.

Since the 20th century, professional philosophers have contributed to society primarily as professors, researchers, and writers. However, many of those who study philosophy in undergraduate or graduate programs contribute to the fields of law, journalism, politics, religion, science, business and various arts and entertainment pursuits. So it can be concluded, the philosophy of science is a special philosophy that discusses various things related to science. As a philosophy, the Philosophy of Science seeks to discuss science as its object rationally (critically, logically and systematically), comprehensively and fundamentally.

Thus, science is not only limited to things that can be captured by the five senses such as observation, understanding and reasoning, but also requires a standardization process that is systematic and methodical. Starting from this definition, questions then arise about Popper's principle of falsification and how it is related to Islamic economics which is currently being widely discussed. To answer questions related to the philosophy of science as above, the author will raise the views of scientific experts who have made a major contribution to the development of science to date, namely Karl Popper with his theory of falsification.

B. Biography of Karl Popper

Karl Raimund Popper was born on July 28 1902 in Vienna, which at that time was claimed to be the cultural center of the Western world. His father, Dr. Simon Siegmund Carl Popper, a Jew who brought him into an atmosphere that he later described as "decidedly bookish " . His father worked as a professional lawyer, but he was also interested in works of Ancient Greco-Roman literature and philosophy, and conveyed to his son an interest in social and political issues that escaped him. His mother instilled in him an interest in music, to the point where he wanted to pursue a career in this field and actually initially chose music history as a second subject for his Ph.D. exams. D.

Then, his love of music became an inspirational force in building thinking and originality of interpretation between dogmatic and critical thinking, his contribution to the distinction between objectivity and subjectivity, and most importantly, fostering resistance to all forms of historicism, including historians' ideas about the nature of " *progressive* " on music. Young Karl attended the local Realgymnasium, where he was unhappy with the standard of teaching, and after an illness that kept him at home for several months, he entered *the University of Vienna* in 1918. However, he did not formally enroll at the University by taking the 4-year matriculation examination. another. Only in 1922 he was accepted as a student there. 1919 was an important formative year in his intellectual life. That year, he involved himself in left-wing politics, joining *the Association of Socialist School Students* and becoming a Marxist at that time.

Popper also discovered the Psychoanalytic Theory of Freud and Adler (this was related to his activities in social work with deprived children), and was fascinated to hear a lecture given by Einstein in Vienna on the theory of relativity, the spirit of criticism of Einstein and the total lack of Marx, Freud and Adler, struck Popper as a very important presence: the latter he returned to thinking, putting their theories in terms that were willing to be confirmed, whereas Einstein's theory, with great difficulty, had testable, if false, implications of the theory can be falsified.

One of the events that influenced Popper's intellectual development in his philosophy was the collapse of Newton's theory with the emergence of the new theory of gravity and cosmology put forward by Einstein. Where Popper was impressed by Einstein's statement which said that his theory could not be maintained if it failed certain tests, and this was very different from the attitude of Marxists who were dogmatic and always sought verification of their favorite theories.

C. Karl Popper's Falsification Principle

Science continues to develop from time to time so that it continues to increase, both in terms of quantity and quality. However, apart from being developed, science is also often debated by experts regarding various things, including basic things such as definitions, elements that make up science, basic criteria, how to detect scientific truth, research methods used, and other matters related to science. These debates aim to explore the basic philosophy of science itself so that academics are expected to be able to clearly understand the basic things about science before studying it further.

Discussing the philosophy of science, the main thing that cannot be avoided is the discussion regarding the definition of science itself. Since the ancient era until now, you can find various opinions from experts regarding the definition of science according to their respective points of view, but still one cannot determine the most correct understanding of science. If we quote the definition from Djoko Sulistyono (2015), science is the result of capturing the five senses which are then processed and determined systematically using certain methods.

Karl Popper is an Austrian philosopher who has contributed important thoughts regarding the understanding of the philosophy of science, namely through his book entitled *Normal Science and Its Danger* in 1970. According to Popper's thoughts, the main characteristic of science is that it must be falsifiable. Falsification is testing or confronting a theory with facts that have the opposite value so that the theory is proven to be untrue. A simple example of the concept of falsification is: There is a statement that 'all cats have long tails'. This statement can be falsified because through research it was discovered that there are types of cats with short tails.

According to Popper (1970), falsification is the right way to develop science because basically science can develop based on errors or mistakes. By implementing falsification, academics will compete to continue experimenting and making observations to produce new theories that are considered more correct so that science continues to develop. On the other

hand, if you apply verification methods, knowledge will turn into dogma, thereby hindering the development of science itself.

Apart from that, in terms of developing science, Popper emphasized the use of the deductive hypothesis method. This method is carried out by starting research by proposing a hypothesis that cannot be predicted whether it can become a theory or not, then the hypothesis is tested deductively using falsification logic. Based on the falsification method he promoted, Popper made two important statements regarding the truth of science, namely that no theory has absolute truth and a theory or knowledge should be falsifiable (Smith, 2000). So in Popper's view, everything that can be falsified can be categorized as science, while that which cannot be falsified is categorized as not science or non-science, for example religion. Thus, falsification can be used to differentiate between *science* and *non-science* .

Sir Karl Raimund Popper (1902-1994) was an Austro-British philosopher and professor at *the London School of Economics* (LSE). He is commonly seen as one of the greatest philosophers of science of the 20th century. Popper's view of science consists of two elements: the criteria for demarcation between science and metaphysics, and a description of the nature of scientific methodology. The first element relates to issues related to the status of science in the broad spectrum of knowledge, especially when looking at the social sciences. The second element relates to issues about the nature of science and how science advances.

According to Popper, the scientific method is characterized by propositions from theories as well as *conjectures* and *refutations* of these theories. Popper presented the idea of *falsifiability* as a way to distinguish genuine scientific theories *from pseudoscience* theories . Popper used the term "Critical Rationalism" to describe his philosophy. In relation to the scientific method, this term indicates its rejection of classical *empiricism* and has departed from the classical *observationalist inductivist* view of science.

Popper stated his firm opposition to the *inductivist observationalist* view, holding that scientific theories are essentially abstract, and can only be

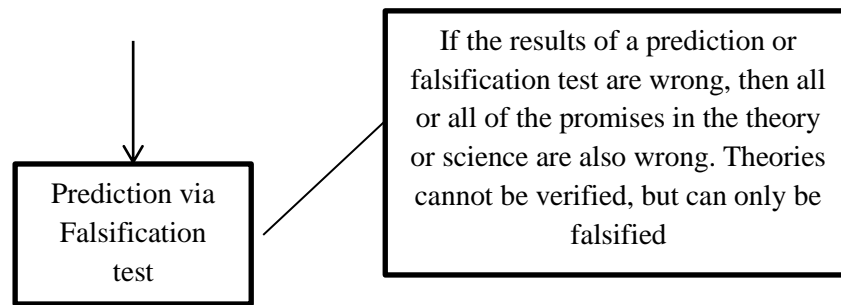
tested indirectly, by referring to their implications. He also holds that scientific theories, and human knowledge in general, are both *conjectural* and *hypothetical* which are irreducible in nature, and which originate from creative imagination in relation to solving problems that arise in specific *historico-cultural settings* .

So logically, no number of positive *outcomes* at the level of experimental testing can confirm a scientific theory, but a single counterexample *is* logically decisive: it shows the theory, from which the conclusion is drawn, to be wrong . The term *falsifiable* does not mean that something is made to be false, but rather that, if it is false, it can be demonstrated by observation or experiment. Popper's view of the logical asymmetry *between verification and falsifiability* *is* the core of his philosophy of science. That is also what inspired him to take *falsifiability* as a demarcation criterion between genuine scientific and non-genuine scientific: "a theory should be considered scientific if, and only if, it can be falsified". Thus, Popper emphasized that the progress of science goes through a process of *conjecture* and *refutation* . He summarized some of the important features of the process as follows:

- a. It's easy to "verify" evidence; then verifying this proof has no intrinsic value.
- b. In certain uses, predictions can be risky.
- c. Theories would be better (have as much *content*) as possible to limit what could happen.
- d. Theories that cannot be rejected by possible observations are not scientific (demarcation criterion).
- e. to "test" a theory in any serious sense is to try to show it to be wrong.
- f. Evidence will confirm (*corroborates*) a theory if it passes serious testing (*genuine*).

Quoted from Komarudin, in simple terms Popper's falsification can be described as follows:

Theory or science



This process takes place starting with conjecture *and* trying to reject it (*falsify*); then move on to the next conjecture, and so on, until a *conjecture is found* that cannot be falsified. If we have difficulty falsifying it, then the theory is *corroborated* . This does not mean that the theory has a high level of probability. The theory may still be *improbable* to provide evidence. We only accept scientific theories tentatively, while continuing to experiment to reject them. Here "tentative acceptance" does not mean to believe that the theories are true, or even to have great confidence in their truth.

D. Possible Application of Falsification in Islamic Economics

The principle of falsificationism like this can bring about a critical attitude, which is an important element for the development of science. The application of the concept of falsification allows someone to discover new theories and criticize their own scientific buildings without having to feel embarrassed. This will also give an intellectual more freedom to experiment. So it would not be wrong to say that Popper's falsification thinking had practical effects that changed the way scientists work (Taryadi, 1991).

The principle of falsification emphasizes that the strength of a statement/theory is not determined by the level of validity/truth of the theory but is determined by whether the theory can be proven/tested for error (Popper, 2008). Popper's ideas are interesting when applied to the study of Islamic economics. However, when using it, it must be realized that Popper's study is purely for *science* , so it must be able to avoid being accused of leaving Islamic doctrine.

Some people have used Popper's falsification in studying the thinking of Muslim economists, namely Muhammad Baq Sadr and Timur Kuran. Cenruang Alung's research (2021), which critically examines the thoughts of Baqir ash-Shadr and Timur Kuran, is deemed capable of reconstructing Islamic Economic thought, because of the different genealogy of thought of each of these figures. The results of this research show that as the fruit of thought, Islamic Economics definitely has room for error (falsifiable). Falsification seeks to find weaknesses in Islamic Economics, not weaken it. Through the thoughts of Baqir ash-Shadr and Timur Kuran, the room for error in Islamic Economics is seen more clearly, opening up paradigms and attacking rigid thinking constructions.

Apart from that, the principle of falsification is also used to analyze fiscal policy in Indonesia from an Islamic perspective by Minarni (2014) who discusses the theme of economic welfare from the perspective of classical Islamic thought belonging to a great scholar, Ibnu Taimiyah. His thoughts on public finance are compared with the thoughts of fiscal policy makers in Indonesia to obtain a logical and balanced comparison using the principle of falsification.

Based on several studies, it can be seen that Popper's principle of falsification can be used to study the science of Islamic Economics so that it can be understood comprehensively. The function of falsification is not to weaken but to identify weaknesses so that they can be overcome so as to perfect existing theories or knowledge.

E. Closing

Based on the discussion above, it can be concluded that falsification is the right way to develop science because basically science can develop based on errors or mistakes. Popper's ideas are interesting when applied to the study of Islamic economics. Several studies on Islamic economics indicate that Popper's falsification principle can be used to study Islamic economics so that

it can be understood comprehensively. The function of falsification is not to weaken but to identify weaknesses so that they can be overcome so as to perfect the theory or science.

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